

**IN THE CLAIMS**

1. (previously cancelled)

2. – 9. (currently cancelled)

10. (previously cancelled)

11. – 28. (currently cancelled)

29. (new)      An optical network comprising a plurality of nodes including a first node, the first node comprising:

        an optical switch including a plurality of ports, each port adapted to transmit optical signals and to received optical signals, and each port assigned a port identification unique within said first node;

        said optical switch operable to route optical signal from a first port of said first node to a second port of said first node;

        a light source connected to said optical switch of said first node, said light source operable to generate optical signals;

        a light detector connected to said optical switch of said first node, said light source operable to detect optical signals;

        a control circuit connected to said optical switch of said first node, said light source of said first node, and said light detector of said first node; and

        said control circuit operable to determine connection information for each of the ports of said optical switch of said first node, the connection information including port identification and node identification of ports and nodes connected to each of said optical switch of said first node.

30. (new)      An optical network recited in claim 29 wherein said control circuit is operable to forward the connection information to a router.

31. (new) An optical network recited in claim 29 wherein said router is programmed to poll said control circuit of said first node for connection information.
32. (new) An optical network recited in claim 29 wherein said control circuit is operable to forward the connection information to a second node.
33. (new) An optical network recited in claim 29 wherein said control circuit activates said light source to generate node identification signal for transmission to a second node via one of the ports of said first node.
34. (new) A method of determining topology of a network having a plurality of interconnected nodes, each node having a plurality of ports, and wherein at least one port of a first node is connected to a port of a second node, the method comprising:
- transmitting a node identification signal from a first port of the second node to a first port of the first node, the first port of the second node connected the first port of the first node, wherein the node identification signal includes node identification of the second node and also includes port identification of the first port of the second node;
  - receiving, at the first node, the transmitted node identification signal;
  - determining connection information, from the received node identification signal, that the first port of the first node is connected to the first port of the second node;
  - storing the connection information; and
  - forwarding the connection information to at least one of the following: a third node and a router.
35. (new) The method recited in claim 34 wherein the first node is identified using a first node identification provided by the router.
36. (new) The method recited in claim 34 further comprising a step of storing, at the

third node, the connection information.

37. (new) The method recited in claim 34 further comprising a step of storing, at the router, the connection information.

38. (new) The method recited in claim 34 further comprising a step of polling the first node for the connection information.

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